

November 2, 2000

U S Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, DC 20555

**PRAIRIE ISLAND NUCLEAR GENERATING PLANT**

Docket Nos. 50-282 License Nos. DPR-42  
50-306 DPR-60

**Request for Notice of Enforcement Discretion**  
**Prairie Island Technical Specification 3.3.D**

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On November 1, 2000, at 1:40 pm CST, Prairie Island declared three vertical cooling water pumps inoperable for lack of qualified source of line shaft bearing water. Per phone call to Region III at 3:15 pm CST, Prairie Island requested verbal approval for a Notice of Enforcement Discretion (NOED) to allow noncompliance with Technical Specifications in this case for a period not to exceed 14 days. This letter is the required follow-up written notification to request a Notice of Enforcement Discretion (and has been reviewed by the Prairie Island Operations Committee).

In this letter we make the following new Nuclear Regulatory Commission commitments:

- 1. *Prairie Island will design and install a safety-related source of water to the diesel-driven vertical cooling water pumps' line shaft bearings. This temporary modification will be operational by November 15, 2000.***
- 2. *Prairie Island will design and implement a permanent design change to restore the Filtered Water supply to all three of the vertical cooling water pumps' line shaft bearings to a fully qualified, safety related system. The temporary modification will remain in place at least until the permanent modification is operational.***

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- 3. *Prairie Island has enacted and will maintain certain compensatory measures until such time as the temporary modification noted above is operational. These measures include:***
- *Establishing an hourly firewatch in the screenhouse basement***
  - *Stationing a dedicated operator in the screenhouse to provide a backup bearing water supply***
  - *Performing a PRA evaluation to identify equipment to be added to the protected equipment list.***
- 4. *If one or both of the units are shut down for some other reason during the effective period of the NOED, the affected units will not be restarted until such time as the temporary modification is operational.***

Please contact Jeff Kivi (651-388-1121) if you have any questions related to this letter.



Donald A. Schuelke  
Plant Manager  
Prairie Island Nuclear Generating Plant

c: Regional Administrator - Region III, NRC  
Senior Resident Inspector, NRC  
NRR Project Manager, NRC  
J E Silberg

Attachments:

Affidavit

1. REQUEST FOR ENFORCEMENT DISCRETION REVIEW ITEMS

UNITED STATES NUCLEAR REGULATORY COMMISSION

NUCLEAR MANAGEMENT COMPANY, LLC

PRAIRIE ISLAND NUCLEAR GENERATING PLANT

DOCKET NO. 50-282  
50-306

REQUEST FOR NOTICE OF ENFORCEMENT DISCRETION  
DATED NOVEMBER 2, 2000

Nuclear Management Company, LLC, a Wisconsin corporation, requests a Notice of Enforcement Discretion. Attachment 1 documents our reasons for and arguments in support of a Notice of Enforcement Discretion.

This letter contains no restricted or other defense information.

NUCLEAR MANAGEMENT COMPANY, LLC

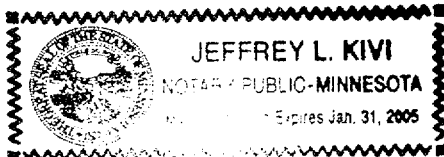
By Donald A. Schuelke  
Donald A. Schuelke  
Plant Manager  
Prairie Island Nuclear Generating Plant

State of MINNESOTA

County of GOODHUE

On this 2<sup>ND</sup> day of NOVEMBER 2000 before me a notary public in and for said County, personally appeared Donald A. Schuelke, Plant Manager, Prairie Island Nuclear Generating Plant, and being first duly sworn acknowledged that he is authorized to execute this document on behalf of Nuclear Management Company, LLC, that he knows the contents thereof, and that to the best of his knowledge, information, and belief the statements made in it are true.

Jeffrey L. Kivi



## REQUEST FOR ENFORCEMENT DISCRETION REVIEW ITEMS

### **1. The TS or other license condition that will be violated.**

Technical Specification 3.3.D.2 allows operation with up to two of the five cooling water pumps inoperable for up to 7 days. Prairie Island has determined that the Filtered Water supply to the vertical cooling water pumps is essential support equipment for these pumps (i.e., the pumps are considered inoperable without Filtered Water to the line shaft bearings). The Filtered Water supply to the vertical cooling water pump bearings is non-safety related and cannot be credited for accident mitigation, thus, three of five cooling water pumps were declared inoperable. Therefore, Technical Specifications would require application of TS 3.0.C, which requires operating units be in hot shutdown in 6 hours and in cold shutdown in the following 30 hours. This request would allow Prairie Island to not apply the requirements of TS 3.0.C to the cooling water pumps for 14 days to allow installation of a safety related source of water to the diesel-driven vertical cooling water pumps' line shaft bearings.

### **2. The circumstances surrounding the situation, including root causes, the need for prompt action and identification of any relevant historical events.**

During the current Safety System Design Inspection, the Inspection Team asked questions regarding the Filtered Water system. The issue that surfaced was that the Filtered Water system was originally installed as QA Type I and subsequently downgraded to QA Type III in 1977. Since Filtered Water is QA Type III, it cannot be credited for accident mitigation. It was then questioned whether the safeguards vertical cooling water pumps were considered operable without the Filtered Water system providing bearing water flow. After discussions with vendors, it was determined that the safeguards vertical cooling water pumps were not operable without some amount of bearing flow provided.

The Filtered Water system is supplied through two branch connections from the safety related cooling water header. There is one branch from Loop A and one branch from Loop B. These branch connections are downstream of the Cooling Water Strainers in the main supply headers. The motive force in the system is differential pressure. The Filtered Water system has three filters, with one normally in service. Two of the filters have automatic backwash capability (non-safeguards power) and one is a standby cartridge type filter. The Filtered Water piping then goes to each vertical cooling water pump. There is another small dual cartridge filter at each pump.

The Filtered Water system was modified during the 1988 to 1990 time frame. Well water was tied into the Filtered Water system. The well water pump (non-safeguards power) provides a very clean source of water to the pump bearings. This feature extends bearing life and reduces the maintenance on the small filters at the pumps. If

the well water supply is lost, a control valve opens to automatically supply filtered water and a check valve isolates Filtered Water from well water. Additionally, some of the steel piping in the Filter Water system was replaced with PVC piping. The Filtered Water system has been in normal service throughout plant operation.

Through discussions with bearing and pump vendors, it was determined that bearing flow was required to consider the vertical pumps operable. Since the Filtered Water system is QA Type III, it cannot be relied upon for accident mitigation. Therefore, all three vertical pumps are declared inoperable. Technical Specification 3.3.D.2 allows for only two cooling water pumps to be inoperable. Therefore, Technical Specification 3.0.C is entered.

**3. The safety basis for the request, including an evaluation of the safety significance and potential consequences of the proposed course of action. This evaluation should include at least a qualitative risk assessment derived from the licensee's Probabilistic Risk Analysis (PRA)**

Filtered Water system provides bearing water flow to the vertical cooling water pumps. The system was installed QA Type I, but was downgraded to QA Type III in 1977. It has been determined that the bearing flow is needed for pump operability. Since it is no longer safety related, it cannot be credited to mitigate an accident.

The Filtered Water system, even though downgraded, has remained in place and functional throughout plant operation. The filters in the system are in the plant Preventative Maintenance program. The system was modified to tie in well water. This was done to provide a very clean source of water to the bearings to prolong bearing life.

A walkdown of the system was done to assess its overall condition. A portion of the system piping has been replaced with PVC. A pipe stress analyst has made a qualitative evaluation of this section of pipe. He observed that the pipe is well supported and PVC is generally flexible. He concluded that it was likely that the pipe would survive a seismic event. The other design events for which the system is required to continue to operate do not functionally challenge the system.

Since there is a portion of the Filtered Water system that is PVC pipe in the lower level of the screenhouse, this area was reviewed for the effects of a fire. The Fire Hazards analysis classifies the fire load rating in this area as Very Light (less than 15 minute fire severity). There is operable fire detection and suppression equipment. The suppression will actuate at 212F. The PVC pipe is not affected until approximately 395F. Therefore, the PVC pipe is expected to survive the effects of a fire.

Within 14 days, a temporary modification will provide bearing water from a safety-related portion of the cooling water system to the bearings. This action will restore the

safeguards vertical cooling water pumps to operable. It is our intent that the Filtered Water system continues to be the normal bearing water source. This configuration is preferred because the Filtered Water system can provide clean well water to the bearings. If the well water source is lost, the Filtered Water system backs it up automatically. If Filtered Water is lost, the temporary modification will automatically provide bearing water.

The temporary modification will initially only be made for the Diesel Driven Cooling Water Pumps (DDCLP). This is because these pumps are dedicated to a specific safeguards train. The 121 Cooling Water Pump, motor driven, is a swing pump and the installation is more complicated. This may be addressed at a later time. The temporary modification will not rely upon operator action to supply a safeguards source of bearing water to the safeguards pumps. It is possible that the source of bearing water will be directly from the cooling water supply headers. If this is the final configuration of the temporary modification, the effect of providing a lower water quality to the pump bearings will be evaluated prior to operation of the temporary modification.

Operations staff will be made aware of the increased attention needed when the bearing water low flow alarm is received. They will also be informed of compensatory actions to be used, and the progress and design of the temporary modification.

For the long term, the Filtered Water system will be assessed to determine what changes are needed to provide a safety related bearing water flow to the vertical cooling water pumps. It is our goal to continue to provide clean well water to the bearings.

### Qualitative Risk Assessment

Loss of bearing water flow for the vertical cooling water pumps was not initially included in the current plant PRA model due to the belief that the system was not required to function to maintain the function of the pumps themselves. Therefore, a qualitative assessment of the risk associated with addition of this pump failure mode was performed. This assessment will be followed up with a quantitative assessment once a more comprehensive analysis of the system interactions and modeling can be performed.

In the qualitative assessment, the impact of the pump bearing water flow dependency on accident initiating events was analyzed. Any initiating event caused by loss or malfunction of the system would result in an event with plant response similar to a transient event. No potential was identified for loss or malfunction of the system to directly result in a challenge to the reactor coolant pressure boundary (i.e., LOCA) or the secondary pressure boundary (main steamline break), or to the availability of offsite power. Note that at Prairie Island, the reactor coolant pump seal injection function supplied from the positive-displacement CVCS charging pumps does not depend on the

availability of the cooling water system. Therefore, without additional failure(s) of the seal injection function, no challenge to RCP seal cooling will occur.

Cooling water is required for operation in all plant operating modes as it provides the ultimate heat sink for plant operation. Therefore, loss of the cooling water system can cause a plant shutdown and concurrently cause the loss of multiple safety-related SSCs important for plant shutdown to a safe, stable state. Since it is assumed that the loss of the Filtered Water system would result in the unavailability of the three vertical pumps, the potential for a loss of cooling water initiating event is increased. However, this increase is not large due to the diverse means of supplying the water (preferred supply from a well water pump with automatic transfer to Filtered Water). Plant operating experience shows that the system provides a reliable supply of water for continuous pump operation.

The impact of loss of vertical cooling water pump bearing water flow on the ability of the system to perform its accident mitigation functions was considered. The increase in the potential for failure of the vertical pumps to run in response to a transient or accident initiating event is assumed to be small, since (as described above) diverse means of providing bearing water flow are available with the existing system. However, a significant increase in plant risk can occur for those initiating events that directly result in the loss of bearing water flow and the loss of other equipment important to safety. The only initiating events identified in this category were a significant seismic event and loss of offsite power (LOOP).

The Prairie Island plant is located in a region of low seismic activity, such that the frequency of strong seismic events (in excess of the 0.12g Safe Shutdown Earthquake level) near the plant is expected to be very low. However, the occurrence of a strong seismic event could have severe consequences. The Filtered Water system is no longer a seismically qualified system. Therefore, the survivability of offsite power and both suction supplies to the auxiliary feedwater pumps for both units (the non-seismically qualified condensate storage tanks and the cooling water system) are in question. All other means of decay heat removal depend on cooling water for long term operation.

In this NOED request, Prairie Island is proposing to modify the bearing water supply to restore its seismic qualification. Therefore, only the risk associated with earthquakes and other events incurred over the interim period (14 days) until the modifications are operational is germane to this NOED. The likelihood of a SSE or higher magnitude earthquake over this short period of time is very low, such that the overall risk due to seismic initiating events is also very low.

Occurrence of a loss of offsite power (LOOP) event would result in the loss of the well water pump and the automatic backwash function of the normally in-service Filtered Water filters. At some point following the event (not immediately) it is postulated that

the Filtered Water filters will completely plug, such that loss of bearing cooling occurs. This would leave the plant without cooling water, without which the Unit 1 emergency diesel generators would eventually fail. In addition, the component cooling water systems for both units would eventually become incapable of removing heat from the safeguards equipment they serve. This would result in the loss of one means of removing heat from the reactor coolant pump seals. However, the normal means of seal heat removal (RCP seal injection from the charging pumps) would not be affected, since this function does not have a dependency on the operation of the cooling water system. Eventual loss of the normal charging pump suction supply from the VCT, due to letdown isolation and loss of reactor makeup supply, is mitigated by the automatic switchover of the suction supply to the RWST. In addition, the auxiliary feedwater system remains available for decay heat removal, since the availability of the condensate storage tank suction supply to the pumps is not impacted.

The compensatory measures discussed in Section 6 below all act to reduce the core damage risk of this temporary condition. The identification of equipment critical to protect acts to reduce both the likelihood of occurrence of the important initiating events (particularly loss of offsite power and the loss of cooling water initiating events) and the consequences of the event should it occur. The local operator action to restore bearing cooling through the hose connections acts to reduce the likelihood of an initiating event progressing to loss of the cooling water system.

The cooling water system is required for shutdown operation as well, since it supplies cooling for decay heat removal through the steam generators and the residual heat removal system. Also, the reliability of the system to perform its function given the non-compliant condition of the bearing cooling water is not enhanced by unit shutdown. In addition, at cold shutdown there is a reduction in the diversity of means available to provide decay heat removal (the steam generators are not available to provide an alternative to RHR for long term cooling).

Alternatively, the risk of continued plant operation with the noncompliance is low. This is based on the low likelihood of risk-significant initiating events, the equipment that remains available to protect the decay heat removal safety function should an event occur, the compensatory measures put in place, and the limited time over which the condition will exist. Therefore, the risk to the public of temporary operation with the non-compliant condition is low, and is considered to be no greater than the Tech Spec required shutdown to cold shutdown of both units.



**4. The basis for the licensee's conclusion that the noncompliance will not be of potential detriment to the public's health and safety and that a significant hazard consideration is not involved.**

Overall, Prairie Island concludes that continued operation with a functional (although not fully qualified) essential support system (the water supply to the vertical cooling water pump line shaft bearings), such that three cooling water pumps were declared inoperable, will not be of potential detriment to the public's health and safety when compared to a two unit shutdown. This is largely because the affected cooling water pumps are still required and the essential support system is still unqualified regardless of Operational Mode. In addition, taking the plant to Cold Shutdown eliminates one of the diverse means of decay heat removal (auxiliary feedwater).

Based on the following assessment, Prairie Island has determined that the noncompliance poses no significant hazard as delineated by 10 CFR 50.92. The noncompliance:

- Does not involve a significant increase in the probability or consequences of an accident previously evaluated.

The noncompliance does not increase the probability of an accident because the cooling water system cannot initiate an accident (the safety related cooling water system is provided for accident mitigation).

The noncompliance does not significantly increase the consequences of an accident (both with respect to dose to the public and dose to the control room operators) because cooling water is the safety related ultimate heat sink for shutdown operations (i.e., for removing decay heat). A permanent loss of cooling water would eventually have significant consequences regardless of Operational Modes of the units. Thus, the noncompliance – not going to Cold Shutdown with three cooling water pumps declared inoperable – does not lead to a significant increase in consequences if all cooling water flow is assumed to be lost. Realistically, a permanent total loss of all cooling water is not expected, particularly since the time it is expected to take to make the temporary modification operational is relatively short (less than 14 days).

- Does not create the possibility of a new or different kind of accident from any accident previously evaluated.

The noncompliance will not create the possibility of a new or different kind of accident because safeguards cooling water pump inoperability is not an accident precursor.

- Does not involve a significant reduction in a margin of safety.

This noncompliance does not significantly reduce the margin of safety because the long-term integrity of fuel cladding, containment, and reactor coolant system is reasonably ensured:

- Cooling water supports fuel cladding integrity by serving as the ultimate heat sink for removing decay heat. Cooling water is needed in all modes to support this function, so the margin of safety is not significantly different whether plant operation is continued or the plant is shut down.
- Cooling water supports containment integrity following a loss of coolant accident or steam line break in containment by providing cooling water to the containment fan coil units which serve (in conjunction with containment spray) to keep containment pressure from exceeding design pressure. Filtered Water supply to the cooling water pump line shaft bearings is reasonably assured for these accidents, because the accidents are not expected to cause a failure of the unqualified portions of the Filtered Water system. Even if the Filtered Water system did break concurrently with one of these accidents, the cooling water pumps do not fail immediately and it is expected that peak containment pressure will be mitigated prior to the loss of bearing water leading to a catastrophic cooling water pump failure.
- The reactor coolant system does not rely on cooling water to maintain its integrity.

**5. The basis for the licensee's conclusion that the noncompliance will not involve adverse consequences to the environment.**

Prairie Island has evaluated the noncompliance and determined that:

1. The noncompliance does not involve any significant hazards consideration,
2. The noncompliance does not involve any significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or
3. The noncompliance does not involve any significant increase in individual or cumulative occupational radiation exposure. That is, none of the proposed changes will cause an increase in the expected individual or cumulative occupational radiation exposure either during normal operation or during a postulated accident.

Thus, Prairie Island has concluded that the noncompliance will not involve adverse consequences to the environment.

## **6. Any proposed compensatory measure(s).**

There are three compensatory measures that will be put into place until the temporary modification is operational; an hourly fire watch, PRA protected equipment list, and a standby bearing water supply.

- To provide added confidence that a fire will not adversely impact the Filter Water system, an hourly fire watch will be established for the lower level of the screenhouse. This will be an individual other than the dedicated operator for the standby bearing water supply.
- A PRA evaluation will be performed to identify accident sequences that have the potential for increased risk. The important equipment in addition to Filter Water and cooling water will be identified. This equipment will be on a protected equipment list. These components will only be removed from service for essential corrective maintenance.
- A dedicated operator will be stationed in the screenhouse for the purpose of providing a backup bearing water supply. If the Filtered Water supply of bearing water is lost, an alarm in the control room will alert the operator. The control room operator will direct the dedicated operator in the screenhouse to implement the backup bearing water supply. The backup supply consists of a hose that is connected to the safety related cooling water system, tools to allow connection of the hose to the bearing supply piping, and procedural guidance.

The dedicated operator will be the same operator that is currently stationed in the screenhouse for compensatory measures regarding the air/vacuum valve. This is acceptable. The actions required for the air/vacuum valve are immediately upon pump start and consist only of notification of the control room. Our engineering judgement, based on discussions with a bearing vendor, pump vendor and INPO operating experience, is that the pump will be able to operate for at least an hour without bearing flow. During this time frame, the bearings would degrade (wear down faster), but there would not be catastrophic damage to the pump. Once the standby bearing supply is in place, the pump is expected to operate properly.

## **7. The justification for the duration of the noncompliance.**

The 14 day duration of the NOED is reasonable because there is no immediate threat to the safeguards cooling water pumps. As stated, the Filtered Water system is in place and functional. The 14 day time frame is needed to complete the engineering design, reviews and approval, parts procurement and installation of the temporary modification.

**8. A statement that the request has been approved by the facility organization that normally reviews safety issues (Plant Onsite Review Committee, or its equivalent).**

The proposed action to request enforcement discretion along with the plant specific conditions requiring the need for the request were approved by the Prairie Island Operations Committee on November 1 at 2:50 pm CST.

**9. The request must specifically address how one of the NOED criteria for appropriate plant conditions specified in Section B of Administrative Letter 95-05, Revision 2, is satisfied.**

Prairie Island Units 1 and 2 are currently in Mode 1, operating at 100% power. The applicable NOED criteria for this condition is:

- "1. For an operating plant, the NOED is intended to (a) avoid undesirable transients as a result of forcing compliance with the license condition, and, thus, minimize potential safety consequences and operational risks or (b) eliminate testing, inspection, or system realignment that is inappropriate for the particular plant conditions."

As stated above, this request is made based on avoiding an undesirable transient as a result of forced compliance with the license condition, and, thus minimize potential safety consequences and operational risks involved in performing an unplanned two unit shutdown. The potential consequences of performing a two-unit shutdown are considered to be both an unnecessary risk and challenge to the plant under the circumstances for which the request is made.

**10. If a follow-up license amendment is required, the NOED request must include marked-up TS pages showing the proposed TS changes. The actual license amendment request must follow within 48 hours.**

Not applicable.

**11. For NOEDs involving severe weather or other natural events...**

Not applicable.